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The Army's M -10 Booker (formerly known as Mobile Protected Firepower (MPF)) System

What Is the Mobile Protected Firepower (MPF) System?

The Army's MPF system is intended to address an operational shortfall in infantry units:

> Currently the Army's Infantry Brigade Combat Teams (IBCT) do not have a combat vehicle assigned that is capable of providing mobile, protected, direct, offensive fire capability.... The MPF solution is an integration of existing mature technologies and components that avoids development which would lengthen the program schedule.

Operationally, the Army wants the MPF to be able to:

> Neutralize enemy prepared positions and bunkers and defeat heavy machine guns and armored vehicle threats during offensive operations or when conducting defensive operations against attacking enemies.

In terms of the Army's overall procurement plans for MPF:

> The Army Acquisition Objective (AAO) for MPF is 504 vehicles, with 14 MPFs per IBCT. The targeted fielding for the First Unit Equipped (FUE) is Fiscal Year (FY) 2025.

MPF Redesignated as the M-10 Booker

On June 14, 2023, the Army announced the redesignation of the MPF as the M-10 Booker infantry assault vehicle. According to the Army:

> The vehicle platform honors two enlisted Army soldiers who served our nation selflessly during times of great conflict – Medal of Honor recipient Private. Robert D. Booker, who perished in World War II, and Distinguished Service Cross recipient Staff Sergeant Stevon A. Booker, who died from injuries sustained in Operation Iraqi Freedom.

The Army noted the historical significance of the M-10 Booker:

> The Army's last named combat vehicle platform was the M-1126 Stryker Infantry Carrier Vehicle, also named for two soldiers. Other combat vehicles named in honor of soldiers include the M-1 Abrams Main Battle Tank, the M-2 Bradley Infantry Fighting Vehicle, and the former M-60 Patton Tank. The M-10 Booker is the Army's first vehicle to be named after a soldier who fought in a post 9/11 war.

Note: CRS Reports and Future References for MPF. Until the Army adopts the M-10 designation in official documents and replaces reference to MPF, CRS will continue to use MPF in reports for historical purposes and to avoid confusion.

MPF Acquisition Strategy

In November 2017, the Army issued a Request for Proposal (RFP) for the Engineering and Manufacturing Development (EMD) phase and, in order to maximize competition, planned to award up to two Middle Tier Acquisition (MTA) contracts for the EMD phase in early FY2019.

Middle Tier Acquisition (MTA) according to the Defense Acquisition University is a rapid acquisition approach that focuses on delivering capability in a period of 2 to 5 years. The authority to use MTA was granted by Congress in Section 804 of the FY2016 National Defense Authorization Act (NDAA) (P.L. 114-92). Programs using MTA are not subject to the Joint Capabilities Integration Development System (JCIDS) and provisions of DOD Directive 5000.01 "Defense Acquisition System." MTA consists of utilizing two acquisition pathways: (1) Rapid Prototyping, which is to streamline the testing and development of prototypes, and (2) Rapid Fielding, which is to upgrade existing systems with already proven technologies.

On December 17, 2018, the Army awarded two Section 804 Middle Tier Acquisition (MTA) Rapid Prototyping contracts for MPF. The two companies awarded contracts were General Dynamic Land Systems (GDLS), Inc. (Sterling Heights, MI) and BAE Systems Land and Armaments, LP (Sterling Heights, MI). Each MTA Rapid Prototyping contract was not to exceed $376 million. The MTA Rapid Prototyping contracts required delivery of 12 pre-production vehicles (from each vendor) for developmental and operational testing, and a Soldier Vehicle Assessment (SVA).

MPF Program Status

The SVA reportedly began in January 2021 at Fort Bragg, NC—without the BAE prototypes because of production challenges—with testing running through June 2021. While BAE was unable to provide prototypes at the beginning of testing, prototypes were eventually provided to the Army for testing. During the assessment, soldiers evaluated GDLS and BAE MPF prototypes in a variety of operational scenarios.

MPF Low-Rate Initial Production (LRIP) Contracted Awarded

On June 28, 2022, the Army announced the award of a $1.14 billion contract to GDLS for the production and fielding of up to 96 MPF systems (**Figure 1**). Delivery of

the first LRIP MPF system is expected in 19 months, and Initial Operational Testing and Evaluation is planned for the end of FY2024. The first unit equipped is scheduled for the fourth quarter of FY2025, consisting of a battalion of 42 MPFs. Each LRIP MPF system is expected to cost about $12.8 million. Full-Rate Production MPF systems are expected to cost less than LRIP variants and may include modifications based on Operational Testing and Evaluation results.

Future MPF Fielding

The Army's MPF acquisition objective is for 504 systems, with Army officials reportedly noting that this number could vary "slightly." Under current Army plans, four MPF battalions are to be fielded by 2030, with the bulk of the planned acquisition scheduled to be completed by 2035.

Low-Rate Initial Production (LRIP) is a programmatic decision made when manufacturing development is completed and there is an ability to produce a small-quantity set of articles. It also establishes an initial production base and sets the stage for a gradual increase in the production rate to allow for Full-Rate Production (FRP) upon completion of Operational Test and Evaluation (OT&E).

Full-Rate Production (FRP) is a decision made that allows for government contracting for economic production quantities following stabilization of the system design and validation of the production process.

Figure 1. GDLS MPF Variant

Source: General Dynamics, "General Dynamics Land Systems Wins U.S. Army Competition for Mobile Protected Firepower Vehicles," June 29, 2022.

FY2022 Director, Operational Test and Evaluation Report

In January 2023, the Department of Defense's Director, Operational Test and Evaluation Report (DOT&E) issued its annual report on the previous fiscal year's test and evaluation activities. The report notes the MPF's progress toward achieving operational effectiveness is "satisfactory." The report also noted, "Developmental testing found that the MPF had high levels of toxic fumes when firing the main gun, requiring modifications to crew procedures during firing to mitigate the build-up of fumes in the turret." DOT&E recommended the Army "continue implementing system design fixes to reduce the high level of toxic fumes when firing the main gun." DOT&E further recommended the Army "continue improving the vehicle's cooling system to reduce preventative maintenance checks and services times required."

FY2024 MPF Budgetary Information

Table 1. FY2024 MPF Budget Request

Funding Category	Total Request ($M)	Total Request (Qty.)
RDT&E	$102.201	—
Procurement	$394.635	33

Sources: RDT&E: Department of Defense Fiscal Year (FY) 2024 Budget Estimates, March 2023, Army Justification Book Volume 3a of 3 Research, Development, Test & Evaluation, RDT&E − Volume II, Budget Activity 5A, p. 222. **Procurement:** Department of Defense Fiscal Year (FY) 2024 Budget Estimates, March 2023, Army, Justification Book Volume 1 of 1, Procurement of W&TCV, p. 38.
Notes: $M = U.S. dollars in millions; **Qty.** = FY2024 procurement quantities.

Considerations for Congress

Oversight questions Congress could consider include the following:

Creating MPF Battalions

Reportedly, the Army is planning to create a MPF battalion at division level. From this battalion, MPF companies would then be allocated to IBCTs. In terms of personnel, each MPF company requires 64 armor crewmen and 24 armor maintenance soldiers to maintain MPF systems. Given current and anticipated future recruiting challenges, the Army might have difficulties in meeting the demand for MPF crew and maintenance soldiers for new units.

Sustaining and Basing MPF Battalions

Another concern is a limited quantity of on hand, serviceable 105 mm ammunition for MPF training and operational use. As such, there could be a requirement to procure additional 105 mm ammunition and there might also be industrial base- associated ammunition production challenges as well. The provision of existing 105 mm ammunition to Ukraine as part of current and future Security Force Assistance efforts might also have an impact on 105 mm ammunition availability for MPF systems. There are also concerns about suitable storage and maintenance facilities and training ranges for MPF units assigned to infantry posts not structured to accommodate armored fighting vehicles. Additionally, there might be environmental concerns about stationing MPF units at bases in Hawaii and Alaska, for example. One possible solution might be to station MPF units at bases better suited to support armor units, but the Army reportedly would like to keep MPF units within at least a six-hour drive from the division they are assigned to. Another issue is that there might be related challenges in creating MPF units in the Army National Guard (ARNG). Given these MPF unit-related considerations, Congress might also monitor the Army's progress in addressing the aforementioned challenges in creating new MPF units.

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